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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,736	02/19/2004	Yoshiharu Doi	65933-070	3298

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McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
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ALAM, FAYYAZ

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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04/15/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/780,736	<b>Applicant(s)</b> DOI, YOSHIHARU	
	<b>Examiner</b> FAYYAZ ALAM	<b>Art Unit</b> 2618	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/25/2010 has been entered.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Please see rejection below in light of the amendment and arguments.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 2-4, 10-13, and 18- 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hind et al. (USPN 2004/0203908)** in view of **Kasapi et al. (USPN 2007/0165552)**.

Consider **claim 10**, Hind discloses a transmission method comprising: assuming that a plurality of virtual terminal apparatuses which are not a terminal apparatus which is a real targeted communication party are present in respective predetermined directions (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; where measurement points 1 and 2 are not the targeted client devices); generating a transmission weight vector used in transmitting a predetermined signal to a terminal apparatus which is the real targeted communication party, from a received response vector of the targeted terminal apparatus and a first virtual response vector of one of the plurality of virtual terminal apparatuses (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; where a configurable boundary is defined in order to provide communication to a desired terminal 110 based on the determination of the position vectors of the desired terminal and the measurement points), virtual response vectors being stored in advance, and performing a control in such a manner that the first virtual

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response vector is changed (see table 700 which is stored in the base station and each vector is used to determined client's position and compare the position to the defined boundary) to a second virtual response vector having a different value from that of the first virtual response vector so as to change from one of the predetermined directions in which the virtual terminal apparatuses are present to another direction (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]).

However, Hind does not explicitly disclose a transmission weight vector for weighting a transmission signal and a received response vector indicating a received response characteristic of a received signal from the terminal and received response vector and virtual response vector being used to form an antenna's directional pattern such that a signal strength in the direction of the terminal is greater whereas a signal strength in a direction to a virtual terminal becomes smaller and changing the direction in which a virtual terminal is assumed to exist to another direction in which another virtual terminal is assumed to exist.

In the related field of endeavor, Kasapi discloses a transmission weight vector for weighting a transmission signal and a received response vector indicating a received response characteristic of a received signal from the terminal and received response vector and virtual response vector being used to form an antenna's directional pattern such that a signal strength in the direction of the terminal is greater whereas a signal strength in a direction to a virtual terminal becomes smaller and changing the direction in which a virtual terminal is assumed to exist to another direction in which another

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virtual terminal is assumed to exist (see figs. 8, 9 , and 10 and associated text; where the antenna direction is changed when an undesired terminal is detected).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Hind with the teachings of Kasapi in order to avoid interference with undesired radio apparatuses.

Consider **claims 2, 11, and 18**, Hind discloses a radio apparatus, including: a computing unit which computes a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; a position of the client apparatus is determined based on the received signals from the client devices); an acquiring unit which acquires one of virtual response vectors with respect to corresponding of one of a plurality of virtual terminal apparatuses which are not the terminal apparatus which is the targeted communication party, the virtual response vectors being stored in advance such that the predetermined directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; table 700 is stored in the base station and it includes measurement point positions in advance at different locations); a generator which generates a transmission weight vector based on the received response vector computed by said computing unit and the virtual response vector acquired by said acquiring unit (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; transmission from the base station is carried out based on the computed client device position and reported measurement point positions); and a

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transmitter which transmits a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generator (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; base station transmits to the client device that is within the defined boundary), wherein said acquiring unit acquires again another virtual response vector such that one of the predetermined directions in which the one of the virtual terminal apparatuses exists is changed to another direction, and the thus reacquired virtual response vector is again subject to processes by said generator and said transmitter (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]).

However, Hind does not explicitly disclose a transmission weight vector for weighting a transmission signal and a received response vector indicating a received response characteristic of a received signal from the terminal and received response vector and virtual response vector being used to form an antenna's directional pattern such that a signal strength in the direction of the terminal is greater whereas a signal strength in a direction to a virtual terminal becomes smaller and changing the direction in which a virtual terminal is assumed to exist to another direction in which another virtual terminal is assumed to exist.

In the related field of endeavor, Kasapi discloses a transmission weight vector for weighting a transmission signal and a received response vector indicating a received response characteristic of a received signal from the terminal and received response vector and virtual response vector being used to form an antenna's directional pattern such that a signal strength in the direction of the terminal is greater whereas a signal

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strength in a direction to a virtual terminal becomes smaller and changing the direction in which a virtual terminal is assumed to exist to another direction in which another virtual terminal is assumed to exist (see figs. 8, 9 , and 10 and associated text; where the antenna direction is changed when an undesired terminal is detected).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Hind with the teachings of Kasapi in order to avoid interference with undesired radio apparatuses.

Consider **claims 3, 12, and 19** as applied to respective claims, Hind discloses wherein said acquiring unit reacquires, as appropriate, another virtual response vector whose value of correlation with the received response vector computed by said computing unit is less than or equal to a predetermined threshold' value, and the thus reacquired virtual response vector is again subject to the processes by said generator and said transmitter (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]).

Consider **claims 4, 13, and 20** as applied to respective claims, Hind discloses wherein said acquiring unit further includes: a storage which stores the virtual response vectors whose values of mutual correlation therewith are less than or equal to a predetermined threshold value; and a selector which selects a virtual response vector from the virtual response vectors stored in said storage (see abstract; figs. 2-3, 7 and associated text; [0034-0042; 0047]).

**Claims 1, 8, and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hind et al. (USPN 2004/0203908)** in view of **Ahl et al. (USPN 5,448,753)** and further in view of **Kasapi et al. (USPN 2007/0165552)**.



**Consider claims 1, 8, and 9,** Hind discloses a radio apparatus characterized in that: a plurality of virtual terminal apparatuses which are not a terminal apparatus which is a real targeted communication party, (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; measurement points 1 and 2 are not client devices or targeted communication party); an antenna's directional pattern is formed such that signal strength in one of the predetermined directions in which corresponding one virtual terminal apparatuses is present is relatively small (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; a coverage boundary is defined where client devices within the boundary are provided with service and the devices outside are not and the measurement points 1 and 2 receive a relatively small signal strength); and a signal is transmitted to the terminal apparatus which is the real targeted communication party to prevent each of the plurality of virtual terminal apparatuses from receiving a signal (see abstract; figs. 2-3,7 and associated text; [0034-0042;0047]; where a signal is only transmitted to the client device within the boundary and no transmission to the measurement points take place).

However, Hind does not explicitly discloses mobile devices from continuously receiving signals changing the directional patterns from one direction to another direction.

In the related field of endeavor, Ahl discloses mobile devices from continuously receiving signals changing the directional patterns from one direction to another direction (see figs. 9-10 and 13-20 and associated text; abstract; where beam pattern in a given cell is changed from one direction to another).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Hind with the teachings of Ahl in order to minimize and avoid interferences (see col. 1, lines 60-65).

However, Hind as modified above does not explicitly disclose a transmission weight vector for weighting a transmission signal and a received response vector indicating a received response characteristic of a received signal from the terminal and received response vector and virtual response vector being used to form an antenna's directional pattern such that a signal strength in the direction of the terminal is greater whereas a signal strength in a direction to a virtual terminal becomes smaller and changing the direction in which a virtual terminal is assumed to exist to another direction in which another virtual terminal is assumed to exist.

In the related field of endeavor, Kasapi discloses a transmission weight vector for weighting a transmission signal and a received response vector indicating a received response characteristic of a received signal from the terminal and received response vector and virtual response vector being used to form an antenna's directional pattern such that a signal strength in the direction of the terminal is greater whereas a signal strength in a direction to a virtual terminal becomes smaller and changing the direction in which a virtual terminal is assumed to exist to another direction in which another virtual terminal is assumed to exist (see figs. 8, 9, and 10 and associated text; where the antenna direction is changed when an undesired terminal is detected).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the teachings of Hind as modified above with the teachings of Kasapi in order to avoid interference with undesired radio apparatuses.

***Allowable Subject Matter***

**Claims 5-7, 14-17, and 21-24** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art disclose the subject matter as claimed.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Fayyaz Alam whose telephone number is (571) 270-1102. The Examiner can normally be reached on Monday-Friday from 9:30am to 7:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Fayyaz Alam*

April 7, 2010

/Edward Urban/

Supervisory Patent Examiner, Art Unit 2618